REMARKS

Careful consideration has been given by the applicants to the Examiner's comments and rejection of the claims, as set forth in the outstanding Office Action, wherein Claims 1, 3, 7 and 10 have been rejected under 35 U.S.C. §102(b) as being anticipated by Nels '579; Claims 1-10 have been rejected as being unpatentable under 35 U.S.C. §103(a) over the Acknowledged State of the Art represented by Nels '579, each in view of Winckler, U.S. Patent No. 4,700,823; the rejection of Claims 2, 8 and 9 as being unpatentable over Nels '579; and the rejection of Claims 4-6 as being unpatentable over Nels '579 in view of Domergue, et al. '475.

Accordingly, upon careful consideration of the art, all of which has been submitted by the applicants in an Information Disclosure Statement dated April 26, 2006, and wherein the closest art is discussed as representative of the state of the art in the present specification, applicants note that the claims, as amended herein, clearly and unambiguously distinguish over the cited references.

In particular, applicants respectfully submit that in order to more clearly distinguish over the art, applicants have incorporated the limitations of Claim 2 into Claim 1, setting forth that in the synchronizer ring 10, the thickness of the friction layer 14 is from 0.2 mm to 0.6 mm, and the carbon fiber reinforced plastic is compacted such that under a surface pressure of 10 N/mm^2 the friction layer undergoes a change in thickness of less than 0.015 mm. The foregoing produce a novel material property which is not in any manner disclosed nor even suggested in the prior art, and which presents advantageous features in the formation of synchronizer rings in order to adapt these to high-performance demands, such as for utilization in mechanical transmissions, as disclosed in the specification.

Reverting to the art cited in the Office Action, applicants note as follows, in traverse of the applicability thereof:

Pertaining to Nels '579, set forth in Column 10, Lines 20-47 is that for a further increase in the strengthening or reinforcing process, the friction facing material 15 is saturated with resin, for example, such as a phenolic resin, and to a suitable extent, is initially cured in a furnace and, thereafter, to a suitable extent, cured during the bonding process.

As particularly disclosed in Column 10, Line 32, et seq. of Nels '579, the friction facing material 15 is bonded to a desired friction component by means of a stamping or punch die, whereby it is pressed into its position. Thereby, it is disclosed that the stamp or punch delivers a pressure within a range of 50 to 800 lbs. per square inch for approximately 40 to 100 seconds.

The foregoing process has been known to those skilled in the art for a considerable period of time as the known adhesion or glueing process, whereby the adhesive, and in particular, the phenolic resin, is cured under the application of pressure. It is known that, in particular, phenolic resin forms gases and water during curing, whereby the adhesive layer is driven apart. In order to be able to withstand the gas pressure, and, respectively, the water pressure, the adhesion and curing must be implemented under pressure. To the extent, in that for such a process, the applied pressure for curing and adhesion leads to a densification of the material, or in all instances, acts as a counter-pressure to the gas-emitting adhesive or, respectively, against the gas-emitting phenolic resin, cannot be precluded. The relatively short duration of the pressure, which is employed for adhesion and for curing of between 40 and 100 seconds, rather contradicts that hereby there takes place a densification of the material. Finally, it is also not ascertainable from the Nels publication as to what extent the applied pressure, which is disclosed for the punching die, acts on the material which is to be glued, inasmuch as the material is applied to a conical

friction surface so that the force components which act perpendicularly or normal to the material are reduced relative to the force of the pressure.

Accordingly, it cannot be ascertained from Nels '579 as to whether the applied material is densified or compacted, and it can be merely ascertained that for the adhesion or glueing on and curing of the adhesive or, respectively, the phenolic resin, there is employed a usual degree of pressure application.

From the foregoing, it clearly appears that Nels '579 is in no manner applicable to the formation of a synchronizer ring as set forth in amended Claim 1, which incorporates the features of cancelled Claim 2.

The particular limitations which are set forth in amended Claim 1, clearly characterize the novel compacting of the material through the surface pressure, which has been previously already implemented on the compacted material and through which there is measured a resultant reduction in thickness. A compacted material that is under a surface pressure of 10 N/mm^2, merely indicates a change in thickness of less than 0.015 mm, evidencing good and durably-maintained friction properties, whereas an uncompacted material would, naturally, show a greater thickness reduction for that type of surface pressure than a material that has been already compacted.

Pursuant to the features set forth in the amended Claim 1, this does not merely relate to the indication of a pressure such as a parameter characterizing the degree of compacting of the material, whereby there is imparted a surface pressure under specified conditions and the thereby reduced thickness is measured. The adhesion or glueing on and curing of the material at a pressure of between 50 and 800 PSI in the publication to Nels is not in any manner comparable with the claimed feature characterizing the degree of compaction. In Nels, the material is

subjected to particular pressures during the adhesion or glueing and curing, whereas, contrastingly, in the present claims, there is already set forth a feature which characterizes the already present degree of compaction of the material, whereby for the creation of definite measuring conditions on the compacted material, there is applied the surface pressure of 10 N/mm^2, and, thereafter, the reduction in thickness is measured. Thus, the indicated 10 N/mm^2 is not only provided for compacting, but for the measurement of the already present degree of compaction.

Moreover, Nels fails to disclose, or even suggest, any compacting of the material as such, or the creating of a definite degree of compaction. Nels is not applicable since it describes the pressing of a homogenous surface. One of skill in the art would not consider such a pressing, since hereby the important structure of the material for carrying off of oil would be lost.

This clearly indicates that Claim 1, which incorporates the limitation of previous Claim 2, clearly and unambiguously distinguishes patentably over Nels.

Even combining Nels with the secondary reference to Winckler would not lead to the present invention, as discussed hereinbelow; as follows:

Winckler, U.S. Patent No. 4,700,823, disclosures a friction material of a carbon fiber reinforced plastic for couplings or brakes. This material, however, is produced by means of a CVD process (Chemical Vapor Deposition). However, the CVD process distinguishes itself basically from the manufacturing process for the friction layer which is utilized for the present invention. The starting point for both of the manufacturing processes is a woven carbon fiber mat, which is further processed in a different manner. The material which is employed, pursuant to the present invention, is produced in that eventually the carbon fiber mat is impregnated with a resin, in effect, embedded in resin, and thereafter mechanically compacted. In contrast therewith,

the material described in Winckler is produced in that the carbon fiber mat is further processed by means of the CVD process. For that purpose, the carbon is vaporized by means of sputtering and precipitated onto the surface of the carbon fiber mat, whereby only the surface is compacted. However, this does not signify any mechanical compacting, but only a densification in the context of "sealing" the surface of the carbon fiber mat. This is also mentioned in the portion of the Office Action cited relative to Winckler, Column 7, Line 52 through Column 8, Line 12. Therein, mention is made that the weave or fabric is "highly densified", which can be understood to be as "sealing" or "densifying" of the surface. However, in no instance does this pertain to a mechanical densification or compacting of the weave or fabric. As is set forth in Column 8, Lines 1-8 of Winckler, the CVD-treated carbon fiber mat possesses large hollow spaces between the fabric fibers, and wherein that the fabric possesses a rough texture and an open meshwork. A structure of that type is not present in a mechanically compacted weave. A compacting of the weave or fabric would also not be possible without the saturation of the weave with a resin, inasmuch as the non-fixed fabric (without impregnating with resin) after withdrawing of the mechanical pressure would again assume its original form with a rough texture and open meshwork. In effect, Winckler describes a non-mechanically compacted or densified fabric, whose surface is provided with a sealing coating. Consequently, Winckler does not in any manner have anything in common with the present invention, as set forth in the amended Claim 1.

Moreover, inasmuch as in a CVD process this pertains to an extremely complex and expensive process requiring a processing duration of over 100 hours, a material that is produced in that manner cannot be employed economically for the set tasks pursuant to the present invention, i.e., to prepare a material which is adapted for utilization as synchronizer rings.

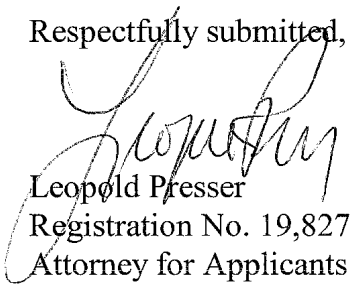
Finally, with regard to Domergue, et al., applicants note that this publication merely pertains to a friction element setting forth specific constituents, and in no manner is there any disclosure of the processing and material produced thereby for the synchronizer ring pursuant to the invention possessing the properties as claimed herein.

In view of the foregoing, all of the remaining dependent claims, which are clearly dependent in a patentable mode upon an allowable amended Claim 1, are also deemed to be directed to novel and allowable subject matter.

In view of the foregoing comments and amendments, the early and favorable reconsideration of the application and allowance thereof by the Examiner is earnestly solicited.

However, in the event that the Examiner has any queries concerning the instantly submitted Amendment, applicants' attorney respectfully requests that he be accorded the courtesy of possibly a telephone conference to discuss any matters in need of attention.

Respectfully submitted,



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